ON-DEMAND OPERATORS HAVE LESS STRINGENT SAFETY REQUIREMENTS AND OVERSIGHT THAN LARGE COMMERCIAL AIR CARRIERS

Federal Aviation Administration

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Memorandum

U.S. Department of Transportation
Office of the Secretary
of Transportation
Office of Inspector General

Subject: ACTION: On-Demand Operators Have Less Stringent Safety Requirements and Oversight Than Large Commercial Carriers Federal Aviation Administration Report Number AV-2009-066

Date: July 13, 2009

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Reply to Attn. of: JA-1

To: Federal Aviation Administrator

At the request of the Chairmen of the House Committee on Transportation and Infrastructure and the House Subcommittee on Aviation, we reviewed the Federal Aviation Administration's (FAA) oversight of on-demand aircraft operators. Their request was prompted by concerns with disparate regulatory requirements between large commercial and on-demand operators and the level of FAA oversight of on-demand operators.

Our audit objectives were to (1) evaluate the differences between FAA regulation and oversight for on-demand operators and larger, commercial air carriers and (2) identify specific issues that may hinder FAA's oversight of on-demand operators.

This is the first of two reports and focuses solely on objective 1. Our second report, which addresses objective 2, will be issued later this year. We conducted this performance audit from September 2007 to March 2009 in accordance with generally accepted government auditing standards prescribed by the Comptroller General of the United States. We included such tests as considered necessary to provide reasonable assurance of detecting abuse or illegal acts. Exhibit A details our scope and methodology. Exhibit B lists the entities we visited or contacted.

BACKGROUND

FAA has three tiers of aviation oversight conducted under three primary regulations: (1) private owner operations regulated under Part 91; (2) small, commercial operators flying primarily on-demand service regulated under Part 135; and (3) large, commercial operators regulated under Part 121. These three industry segments, discussed below, have unique operating environments and serve very different markets.

Private (General) Aviation (Part 91)[1]

This group is comprised of individuals or private businesses that usually fly smaller aircraft that are not for hire. These operators have the least restrictive regulations and receive the least FAA oversight.

Small Commercial Aviation: On-Demand/For-Hire (Part 135)[2]

This group operates smaller aircraft that are configured for 30 passengers or less or under 7,500 pounds of payload. Most of these operators fly on-demand (i.e., at the request of their customers).[3] The operators comprising the on-demand industry segment can range from a company with 1 pilot and 1 aircraft to a company with over 600 aircraft. On-demand aircraft range from small, 2-seat piston engine aircraft to helicopters to turboprops and jets with 10 or more seats. The operations may include short flights to small regional airports, cross-country domestic flights, or international flights.

The on-demand segment of the aviation industry consists of unscheduled passenger service, cargo operations, air tour (e.g., commercial sightseeing), and air medical (e.g., air ambulance, rescue, human organ transportation, and emergency medical services). However, the majority of operations within this segment are conducted for passenger and cargo services. For example, in 2007, passenger and cargo operations accounted for 83 percent of the on-demand aircraft used and 77 percent of the flight hours for Part 135 on-demand operations. While operators in this group receive more oversight than those in the Private Aviation group, they do not receive the level of oversight that FAA provides for large, commercial air carriers.

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[1] 14 CFR § 91, General Operating and Flight Rules.

[2] 14 CFR § 135, On-Demand, Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons On Board Such Aircraft. 14 CFR § 119, Certification: Air Carriers and Commercial Operators, and some of the requirements of Part 91 also pertain to on-demand operators and commercial air carriers.

[3] Commuter operators, which conduct scheduled operations using aircraft with nine or fewer passenger seats, comprise only 3 percent of Part 135 operators and were not included in our review.

Large Commercial Aviation (Part 121)[4]

These carriers operate larger aircraft with primarily scheduled flights. FAA's commercial aviation safety record cites data for Part 121 carriers; on-demand accident statistics are not included. Because these air carriers generally fly the largest aircraft and carry the most passengers, they have the most stringent regulations and receive the most FAA oversight. FAA principal inspectors are usually responsible for only one large, commercial air carrier. Table 1 highlights major distinctions between on-demand and larger, commercial air carriers.

Table 1. Differences Between On-Demand and Commercial Air Carrier Operations

Characteristic	*On-Demand Operators*	*Commercial Air Carriers**
Function	Unscheduled, 30 passengers or less	Primarily scheduled passengers and cargo
Sector Size	Over 2,300 operators	Less than 120 carriers
Number of Aircraft	Over 9,000	Over 7,400
Aircraft Type	Helicopters, single and double-engine airplanes, jets, turboprops, and float planes	Airplanes only—almost all multi-engine jets or turboprops
Number of Passengers in 2008	Unknown	753 million
Flight Hours in 2008	3.67 million (FAA estimate)	19.35 million
Airports	About 5,000, both large and small public	About 500, primary and commercial service

* Part 121 commercial air carriers

RESULTS IN BRIEF

On-demand operators have more risk in their operating environments and receive less oversight from FAA. For example, one on-demand operator we visited flew dozens of flights daily during the summer to take tourists to glaciers on which the aircraft landed and took off on skis. This operator flies 17 aircraft and was inspected 8 times by FAA in 2008. In contrast, a Part 121 operator with 10 aircraft, overseen by the same FAA oversight office, received 199 inspections in 2008. Industry and the National Transportation Safety Board (NTSB) have made recommendations to strengthen on-demand regulations. While FAA has made efforts to improve safety and adapt its oversight to the increased complexity of industry operations, it has not taken substantive action to address these recommendations. Further, FAA does not effectively target inspections to higher-risk on-demand operators. The number of fatalities from on-demand operations makes it imperative that FAA take action to address three issues we identified as it plans regulatory and oversight changes for the growing on-demand operator industry.

[4] 14 CFR § 121, Operating Requirements: Domestic, Flag, and Supplemental Operations.

- **Weaker Safety-Related Regulatory Requirements:** On-demand operators do not have to meet many of the regulatory requirements that large, commercial air carriers must follow. These differences can impact the safety of on-demand flight operations. For example, on-demand regulations allow lower minimum pilot experience for flight crews than commercial air carriers. Further, commercial aircraft must have ground proximity warning systems and traffic alert and collision avoidance systems, but not all on-demand operators are required to have this advanced equipment. Maintenance inspection requirements are also less restrictive for smaller on-demand aircraft. Although on-demand operator regulations are less restrictive, FAA has not implemented recommendations made by its Aviation Rulemaking Committee (ARC) in 2005 that would strengthen the regulations. FAA also has not addressed 16 NTSB recommendations, some of which parallel the ARC recommendations.

- **High-Risk Operating Environment:** On-demand operators generally have more risk factors in their operations and environment than commercial air carriers. For example, they operate shorter flights and generally perform more frequent take-offs and landings than larger air carriers, which are the most dangerous parts of flight. Further, these operations typically involve small airports without air traffic control towers or emergency equipment and flight crews who are often less familiar with their destination airports. These flights are therefore more vulnerable to terrain and weather obstacles. In 2007 and 2008, commercial air carriers had zero passenger deaths although they flew significantly more hours than on-demand operators.[5] In contrast, during that same period, there were 33 fatal on-demand accidents, resulting in 109 deaths.[6] Given these risk factors and the diversity of on-demand operators, targeted, risk-based oversight from FAA is a critical issue.

- **Absence of a Risk-Based Oversight Strategy:** FAA oversight of on-demand operators is based on compliance with regulations rather than where risk dictates. Conversely, FAA oversight of large, commercial air carriers is based on risk assessments. Prioritizing inspections based on areas of highest risk is essential for the efficient use of inspection staff and resources. FAA is developing a new risk-based oversight approach for on-demand operators; however, this new system is not scheduled for full deployment for at least 4 years. In the interim, FAA has decided not to pursue two prioritization systems for safety oversight of on-demand operators, which have already been successfully piloted in some regions.

This report makes a number of recommendations focusing on actions FAA needs to take to enhance safety and oversight of on-demand operators.

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[5] Commercial air carriers flew five times more flight hours in 2007 than on-demand operators.

[6] This is the total for all on-demand operators, including air ambulance and cargo.

FINDINGS

On-Demand Operators Have Less Stringent Safety Regulations Than Commercial Operators

The on-demand industry has changed significantly in the past 30 years. For example, the use of jet aircraft is now very common, and operators fly more complex operations and international flights. However, FAA has not revised its regulations for on-demand operators to keep pace with these changes; many of the Part 135 provisions have not been updated since 1978. One result is that current requirements for maintenance focus on the number of passenger seats rather than the risk factors in an aircraft's operating environment. As shown in table 2 below, regulations for on-demand operators are also far less rigorous than those for large, commercial carriers in key areas, such as flight crew requirements, aircraft equipment, and maintenance inspections. In addition, on-demand operators with aircraft seating 9 or fewer passengers have even less stringent maintenance regulations than on-demand operators flying aircraft with 10 or more seats.

Table 2. Regulatory Differences Between Parts 135 and 121

Subject	Part 135	Part 121
Pilot Duty/Rest		
Maximum Yearly Flight Hours	1,400	1,000
Maximum Flight Hours in 24-Hr. period	10 hours	8 hours
Personnel Requirements		
Minimum Pilot Experience/Hours	500 hours and commercial license	1,500 hours and Air Transport license
Crew Resource Management Training	Not Required	Required
FAA-Licensed Dispatcher	Not Required	Required
Maintenance		
Aging Airplane - Operator Supplemental Inspections	Not Required for all operators	Required
Aging Airplane - FAA Inspection and Records Review	Not Required for all operators	Required
Maintenance program that includes required inspection items and continuous analysis and surveillance system	Not Required for all operators	Required
Aircraft Flight Instruments		
Terrain Awareness and Warning System	Not Required for all operators	Required
Traffic Alert & Collision Avoidance System	Not Required for all operators	Required
Cockpit Voice/Data Recorders	Not Required for all operators	Required
In-Flight Weather Radar	Not Required for all operators	Required

Note: Depending on the size and type of aircraft used, FAA regulations for on-demand operations can be more or less restrictive. This table contains the least restrictive regulations for on-demand aircraft for each subject.

The following discussion further details key regulatory differences and how they impact operations and flight safety.

Regulatory Differences in Crew and Personnel Requirements

Crew Resource Management (CRM) training is not required for on-demand operators. While not required for on-demand operators, large, commercial air carriers and *scheduled* Part 135 operators (commuter) are required to train pilots in CRM. This training focuses on leadership and decision making in the cockpit. However, scheduled, commuter operations account for only 3 percent of total Part 135 operations; therefore, the majority of Part 135 demand operators (who fly non-scheduled) *are not required* to have CRM training. CRM for on-demand operators is one of the NTSB's six most wanted aviation safety improvements.

The NTSB determined that the following fatal, on-demand aviation accidents were caused by crew errors and concluded that an effective CRM program might have prevented them:

- 2001 accident in Colorado, resulting in 18 deaths
- 2002 accident in Minnesota, resulting in 8 deaths
- 2004 accident in Colorado, resulting in 3 deaths

Specifically, the flight crew in the fatal 2004 Colorado crash did not de-ice their aircraft in winter weather and attempted to take off from a runway that was too short for the conditions. The NTSB noted that formal CRM training might have assisted the captain by directing crew attention to the hazards posed by the weather, reinforced his awareness of the importance of complying with company procedures, and promoted more effective crew coordination. The NTSB also concluded that formal CRM training for the recently hired first officer might have reinforced the company's policy that he was authorized to question the captain's decisions and actions.

FAA issued a Notice of Proposed Rulemaking on May 1, 2009, to require CRM training for all Part 135 crew members. However, industry comments are not due until the end of July. Even when the rule goes final, which can take years, FAA has proposed a 2-year implementation period. As a result, we have retained this issue in our report and will continue to monitor the CRM rulemaking process.

Safety training is not required for cabin attendants on smaller aircraft. Operators of larger, on-demand aircraft may use cabin aides or customer service

representatives to serve food and drinks, but these employees are not required to receive safety training if the aircraft carries 19 or fewer passengers.[7]

A February 2005 accident in Teterboro, New Jersey, demonstrated the value of flight attendant training and the potential impact to flight safety. An on-demand passenger jet crashed on take-off, which caused 14 injuries—4 of them serious—and destroyed the aircraft. The NTSB's investigation found that not all passengers were wearing their seatbelts when the take-off roll began, passengers did not receive a safety briefing, and the cabin aide was not able to open the main cabin door and conduct a professional evacuation. The NTSB concluded that the cabin aide's training did not adequately prepare her to perform her assigned duties. In contrast, flight attendants on commercial air carriers must be able to perform an emergency evacuation and be capable of using any emergency equipment installed on the aircraft. The importance of this training was demonstrated in January 2009 when the flight attendants and crew of U.S. Airways Flight 1549 safely evacuated all 150 passengers after an emergency landing in New York's Hudson River.

Regulations for on-demand operators do not require dispatchers. On-demand operators need only establish procedures for following and locating each flight so they can quickly notify FAA or conduct search-and-rescue if an aircraft is overdue or missing. This means that while on-demand operators must maintain flight information (such as departure point and time, planned route, destination, and estimated time en route) there is no requirement for the operator to remain in contact with the air crew during flight. Conversely, commercial carriers are required to have FAA-licensed flight dispatchers who monitor the progress of each flight and provide the pilot-in-command with safety-of-flight information (e.g., adverse weather conditions, airport conditions, etc.) before and during the flight. In addition, Part 121 dispatchers have the authority to delay, divert, or cancel a flight at any time.

In reviewing fatal on-demand accident reports, we identified at least one tragedy that might have been averted if a dispatcher's "second set of eyes" had been involved. In March 2001, an on-demand flight crashed on approach to Aspen Airport killing all 18 passengers and crew. The NTSB investigation determined that the pilot was under pressure from the charter customer to land at Aspen because the customer was to host a dinner party later that evening. We believe the participation of a dispatcher in the decision-making might have encouraged the crew to reevaluate their attempt to land at Aspen given the deteriorating visibility and missed approaches by three other planes.

[7] This is also true for the small number of Part 121 aircraft that seat 19 or fewer passengers.

Regulatory Differences in Aging Aircraft Maintenance Requirements

Current FAA regulations do not require either FAA inspectors or operators to perform aging aircraft inspections of aircraft used by on-demand operators. As a result, FAA has no assurance that passengers on these aircraft have the same level of safety as passengers on older commercial aircraft.

According to a 2005 FAA study,[8] 60 percent of the on-demand passenger and cargo fleet is over 20 years old. The average age of aircraft registered to the 22 on-demand operators we reviewed was 19 years old. Additionally, two of the on-demand operators were flying eight aircraft that were more than 50 years old. In contrast, the average age of the aircraft flown by the Part 121 air carriers is just over 10 years.[9]

Although the average age of commercial aircraft is lower than the on-demand average, the 2005 Aging Airplane Safety Rule[10] requires FAA inspectors to examine *only* Part 121 and Part 135 commuter operator records and aircraft after 14 years of service. Inspectors must determine airworthiness directive compliance, ensure timely replacement of all age-sensitive parts, and inspect for cracks and corrosion. Most commercial air carriers are also required to do additional inspections to examine airplane structures susceptible to fatigue cracking that could contribute to a catastrophic failure. We believe a risk-based surveillance system should require aging aircraft inspections based on the age of the aircraft, without regard to the certificate-type of the operator.

Fewer Maintenance Requirements for Aircraft Seating Nine Passengers or Less

Many of the maintenance regulations for on-demand aircraft seating 10 or more passengers are similar to those for commercial air carriers. However, regulations for the maintenance of aircraft seating nine or fewer passengers are less demanding, despite the fact that these aircraft are involved in more fatal accidents. For example, required inspection items (RII) and continuing analysis and surveillance systems (CASS) are both required for on-demand aircraft seating 10 or more passengers and for commercial air carriers, but not for on-demand aircraft seating fewer passengers.

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[8] Congress mandated this study in 2000. Report to Congress, Section 735 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century, On-Demand Air Taxi Operators (ATO) Study, Federal Aviation Administration, undated (according to media coverage, the report was issued around January 2005).

[9] OIG calculated using 2007 air fleet age data from www.airsafe.com.

[10] 70 Fed. Reg. 5518 (February 2, 2005).

- RIIs are mandatory maintenance activities that, due to their importance to the overall airworthiness of the aircraft, must be independently inspected by a specially trained inspector after the work is complete.
- Air carriers and operators implementing a CASS regularly review the performance and effectiveness of their maintenance and inspection programs and correct any identified deficiencies.

Because these additional requirements do not apply to aircraft with nine or fewer seats, a large percentage of on-demand operators receive a lesser level of inspection. Specifically, operators with these smaller aircraft make up more than 85 percent of total on-demand operators according to 2008 data from FAA's Safety Performance Analysis System (SPAS).[11]

Despite the potential safety impacts of the regulatory differences discussed, FAA has been slow to update or strengthen on-demand regulations. On-demand operators stress that FAA must carefully weigh the safety benefits gained from stronger regulatory requirements against the increased costs, which could negatively impact operators and even drive smaller operators out of business.

FAA Has Not Implemented Recommended Actions To Strengthen Part 135 Regulations

In response to new technologies, new aircraft types, and changes in operating environments, FAA formed an Aviation Rulemaking Committee, or ARC, in 2003 to review Part 135 regulations. The ARC and its subcommittees worked for more than 2 years and submitted 124 recommendations to FAA in September 2005, which provided a roadmap to improve safety and oversight of the on-demand industry. However, more than 3 years after the ARC completed its work, FAA has not issued any final rulemakings to address the recommendations resulting from the ARC's in-depth analysis of on-demand safety and operations.

FAA's 135 Air Carrier Operations Branch (AFS-250), which evaluated the ARC recommendations, provided us with a summary of its disposition of the ARC recommendations as of April 2009 (see table 3):

Table 3. Disposition of ARC Recommendations

Action Taken	Number of Items
Considering Rulemaking	32
No Action	16
Transferred to Other FAA Offices	60
Deferred	11
Guidance Developed	1
Under Discussion	4
Total	**124**

AFS-250 does not track the progress of recommendations transferred to other FAA offices and therefore could not provide

[11] SPAS is a computer-based system that analyzes inspection and air carrier data to aid inspectors in identifying safety problems.

status information on 60 of the ARC recommendations. FAA plans to issue a Notice of Proposed Rulemaking (NPRM) for Very Light Jets in October 2009, which addresses one of the ARC's recommendations. Three other rules, which will address multiple ARC recommendations, are still under development.

In addition, we found that 16 NTSB recommendations resulting from on-demand operator accident investigations (issued since June 2002) also remain open. For example, the NTSB has been concerned about the safety effects of fatigue on flight crews since 1989 and has recommended that operators set working-hour limits for flight crews based on fatigue research. The ARC Subgroup on Flight, Duty, and Rest noted that this is a particular issue for on-demand operators because of "pop-up" flights (i.e., unplanned or unscheduled) that require the operator to take off within a short period of time, making it difficult to ensure that flight crews have received sufficient rest prior to flights.

Some ARC Subgroup members commented that the present FAA flight time/duty time rules are a patchwork of regulations that have been developed over the past 50 or 60 years. Modern technology has decreased cockpit crew size and travel times, while pilot and aircraft utilization have increased. These factors, in combination with the old rules, have put additional pressures on flight crews. Although the ARC Subgroup identified the need for changes, it was not able to reach consensus on a specific flight duty and rest recommendation to FAA. FAA's most recent attempt to significantly update flight duty and rest rules was an NPRM issued in December 1995, but no final regulations were issued.

Another key NTSB concern is reducing dangers to aircraft flying in icing conditions; this has been on the NTSB's Most Wanted Aviation Safety Improvements list since 1997. FAA's response to this issue has been classified as "unacceptable" by the NTSB. The ARC recommended regulations for pilot training to specifically include ice detection to reduce dangers applicable to on-demand aircraft. This recommendation was related to the NTSB's determination that the 2004 fatal crash in Colorado occurred because the flight crew did not properly de-ice the aircraft. Table 4 below shows ARC and NTSB recommendations to improve on-demand safety in these areas as well as crew resource management and cabin safety.

Table 4. Examples of On-Demand ARC and NTSB Recommendations That FAA Has Not Implemented			
ARC Recommendation (September 7, 2005)	**Proposal to FAA**	**Similar NTSB Recommendations** (Based on On-Demand Accident Investigations)	**FAA**
Flight Duty and Rest	Amend the flight, duty, and rest limitations to be more applicable to air carriers operating under on-demand.	**Yes** - NTSB Most Wanted (all commercial operations) - **Multiple Accidents/Fatalities**	**No NPRM to date**
Icing Conditions	Regulations for pilot training to include ice detection in order to reduce dangers applicable to on-demand aircraft.	**Yes** (all commercial operations) - **Accident:** Dillingham, Alaska **Fatalities (10)**	**No NPRM to date**
Crew Resource Management (CRM)	Require on-demand dual-pilot on-demand operations to establish an FAA-approved CRM training program.	**Yes** - NTSB Most Wanted **Accident:** Montrose, Colorado **Fatalities (3), Serious Injuries (3)**	**NPRM issued May 1, 2009**
Cabin Safety	Create two categories of crewmembers that are assigned cabin duties: Cabin Safety Crewmember and Passenger Service Specialist.	**Yes** Teterboro, New Jersey **Serious Injuries (4)**	**No NPRM to date**

NTSB investigations of multiple on-demand accidents resulted in additional recommendations for FAA that would also strengthen Part 135 regulations in other areas, such as requiring cockpit voice recorders in the aircraft as is required for commercial aircraft. The NTSB also recommended required data reporting for on-demand operators in August 2003 so that accurate accident rates can be calculated, which is vital to identifying and prioritizing risk. The on-demand reporting would be much less detailed than the data currently filed by commercial carriers. These recommendations also remain open. During our review, FAA managers and inspectors providing on-demand oversight expressed frustration with the outdated regulations.

On-Demand Operators Have More Inherent Risks in Their Operations and More Fatal Accidents Than Commercial Operators

Commercial air carriers and on-demand operators serve divergent markets with very different equipment and operating environments. Both industry and FAA agree that on-demand operators have more risk factors in their operating environment than commercial air carriers (see table 5 below).

Table 5. Basic Risk Factors for On-Demand and Commercial Operators		
Risk Factor	***On-Demand***	***Commercial***
Operations	Have more take-offs and landings per aircraft	Have longer flights and therefore fewer take-offs and landings
Communications	Fly to airports without ATC towers	Have ATC support
Crew	Have pilots who may be unfamiliar with route. Cabin attendants on smaller aircraft have no safety training requirements.	Have more experienced pilots. Flight attendants on large aircraft are required to have safety/emergency training.
Aircraft Limitations	Have smaller aircraft susceptible to weather with less advanced electronics	Have jet aircraft that can fly "above weather" at high altitudes; advanced electronics required

These risk factors are inherent in on-demand operations as they include more frequent take-offs and landings, flights into small airports without towers or emergency equipment, and crews and pilots who may be unfamiliar with destination airports.[12] For example:

- On-demand operators in southern Florida frequently fly tourists to the Bahamas, where only 4 of the approximately 30 airports have air traffic control towers.

- More than half of the flights completed by two Portland, Maine, operators we visited were into non-towered airports. Conversely, commercial flights have more experienced pilots flying scheduled passenger operations into familiar, FAA-certificated airports with air traffic control facilities and emergency equipment.

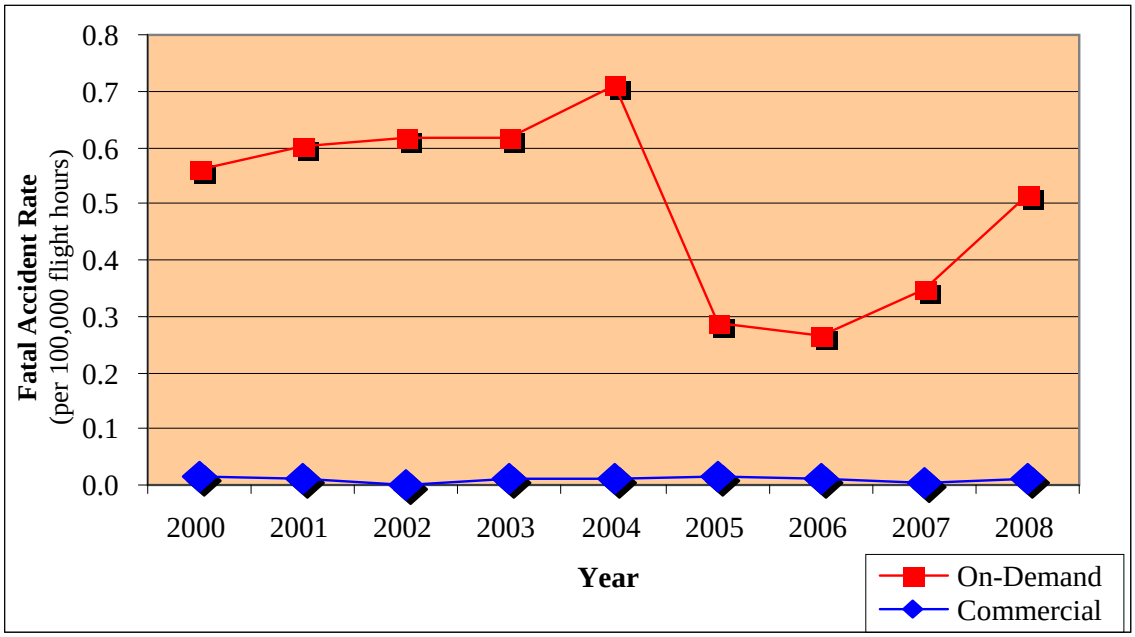
In addition, on-demand operators fly many aircraft types and models—helicopters, single-engine airplanes, turbine-powered airplanes, and float planes. We determined that the 22 operators we reviewed had 321 registered aircraft comprised of 65 different makes/models, from small Cessnas to Gulfstream jets and Sikorsky helicopters. Because they fly at lower altitudes, on-demand aircraft are more vulnerable to sudden weather changes or other obstacles. We note that the high-end jet aircraft flown by some on-demand operators have the same advanced electronics as commercial aircraft. Many of the smaller operators, however, still have very basic equipment in their cockpits. Conversely,

[12] Part 121 Supplemental Operators also fly on-demand. However, after reviewing 2008 data on flight hours for Part 121 air carriers, we concluded that the supplemental operators are not a significant portion of the Part 121 universe. Specifically, unscheduled Part 121 carriers (supplemental) flew only 3 percent of the total Part 121 hours flown in that year.

commercial air carriers predominately operate jet aircraft at high altitudes, well above any terrain or weather obstacles. All of these aircraft have advanced electronics, such as ground proximity warning and traffic alert and collision avoidance systems, and they fly into airports with air traffic control towers.

Higher risks have translated into more fatal accidents for on-demand operators. NTSB statistics show major differences in the accident rates between commercial carriers and on-demand operators. Between 2000 and 2008, the fatal accident rate for on-demand operators was 50 times higher than that of commercial carriers (see figure below).[13] Since January 2003, on-demand operators have been involved in 95 fatal accidents, which resulted in 249 deaths. We note that on-demand operators utilizing jet aircraft accounted for only 5 of the fatal accidents and 22 of the fatalities.

Figure. Fatal Accident Rates for On-Demand Operators and Commercial Carriers, Fiscal Year 2000 to Fiscal Year 2008



The most fatalities for the period 2003 through 2008 occurred in the states of Alaska and Hawaii and in the Gulf of Mexico (see map of fatal crash locations at exhibit C). In both Alaska and Hawaii, air tours are common, and small planes are a major source of transportation for people and cargo. In addition, there are numerous helicopter operations in the Gulf of Mexico delivering crews and supplies to oil rigs.

[13] As discussed previously, on-demand accident rates are estimated because FAA does not require operators to report annual operational data. The NTSB accident rate is calculated using accidents per 100,000 flight hours. The flight hours for on-demand are projected from a voluntary annual general aviation survey.

FAA Lacks a Risk-Based Oversight Strategy for On-Demand Operators

FAA does not have a risk-based oversight system for on-demand operators even though the number and diversity of on-demand operators and the number of fatal accidents warrant this type of oversight strategy. FAA began developing the risk-based, data-driven Air Transportation Oversight System (ATOS) in 1998 to oversee all commercial air carriers. Oversight of on-demand operators, however, is primarily based on required, pre-determined inspection items assigned to inspectors on a nationwide basis. These items are focused on compliance with regulations rather than where risk dictates. FAA has elected not to implement pilot programs of two nationwide oversight prioritization systems for on-demand operators. Instead, FAA plans to wait until its new risk-based oversight approach for on-demand operators is fully developed; however, this system will not be ready for at least 4 years.

FAA Uses ATOS To Oversee Part 121 Air Carriers

ATOS is FAA's primary tool for overseeing commercial air carriers. The emphasis in ATOS is on the airline's ability to maintain a safe process and to correct any identified deficiencies. ATOS provides risk assessment tools instead of the less rigorous, conventional surveillance work program inspections. An air carrier's principal inspectors use data analysis to develop a safety surveillance plan, which is adjusted periodically based on identified risks.

National Program Guidelines for Oversight of On-Demand Operators Are Not Risk Based

FAA uses the National Program Guidelines (NPG) to assign required inspections (R-items, based on oversight issues identified at the national level) to on-demand inspectors. These are assigned using a national database of basic operator information and without considering operator risk factors. Inspectors must complete all R-items and may add other inspections to their work plan (planned or P-items) for operators that they feel need additional oversight. However, some of the inspectors we spoke with did not complete P-items because they only had time to complete the R-items on their programs.

Although the NPG use the terms "risk," "risk-based," and "risk management," the inspections required by the NPG are not risk-based. Instead, inspectors are required to do designated inspections for all or a percentage of their regional on-demand operators. For example, operations inspectors must conduct a ramp inspection on a minimum of 10 percent (minimum of 25 percent for Alaska region) of all on-demand operators that are certificated within their region. Surveillance of these operators must be rotated from year to year, meaning an operator could receive a ramp inspection from an operations inspector as seldom

as once every 10 years. Also, they must conduct a Manual/Procedures, Crew/Dispatcher Records, and Trip Records inspection for each on-demand operator, regardless of operator risk factors.

Further, even though the smallest operators and aircraft have more fatal accidents, they are assigned fewer required inspections by the NPG. We found that 78 percent of all fatal on-demand accidents between 2003 and 2008 involved aircraft seating 9 or fewer passengers. Yet, the NPG require inspections for aircraft seating 10 or more passengers that are not required for aircraft seating 9 or less. Single-engine aircraft and single-pilot operators have even fewer required inspections than operators categorized as 9 or fewer seats.

The inspectors we interviewed did not use SPAS for safety or risk assessments, even though the system has some tools to identify potential safety issues and risk factors. Most inspectors did not believe the existing data, guidance, or procedures were useful in analyzing risks for their on-demand operators. Instead, they determined what needed to be inspected based on general perceptions or their experience with the operators. However, we do not believe this approach is sufficient to safely oversee these operators. The number of on-demand operators and other inspection responsibilities, coupled with the high inspector turnover rate at the Flight Standards District Offices (FSDO) we visited, makes this informal approach to FAA oversight problematic.

FAA Lacks an Interim Strategy for Risk-Based Oversight

FAA plans to wait until its new risk-based oversight approach, System Approach for Safety Oversight (SASO), is developed rather than implement any interim, nationwide oversight prioritization processes for on-demand operators. A key requirement of SASO is a risk-based allocation system that applies inspector resources to the areas of highest risk. When it is fully implemented, SASO will become a functional subset of ATOS. However, SASO is in the early stages of development for on-demand operators. FAA does not expect to implement SASO until at least 2013.

Further, FAA has decided not to implement the following two oversight prioritization systems for on-demand operators, which have already been successfully piloted in some regions:

- *The Surveillance Priority Index (SPI)* was developed in Alaska to assist inspectors in prioritizing surveillance of on-demand operators. SPI provides a ranked order based on risk factors identified in both the SPAS databases and principal inspectors' surveillance and assessment of their operators. The SPAS data used include accidents, incidents, violations, and average surveillance per aircraft. Inspectors' assessment factors can include rapid expansion and non-

compliant attitude. An SPI score is available in SPAS for all on-demand operators, but few of the inspectors we interviewed used the SPI to prioritize surveillance. At the first 3 FSDOs we visited, only 1 of the 23 inspectors we interviewed had any knowledge of SPI.

- *The Surveillance and Evaluation Program (SEP)* was added to the NPG in 2002 to incorporate risk assessment principles into oversight of commercial carriers not yet under the ATOS system. According to FAA managers, seven FSDOs[14] voluntarily use SEP to perform oversight of on-demand operators.

CONCLUSION

Despite experiencing a fatal accident rate 50 times higher than commercial air carriers, on-demand operators have less restrictive regulations and oversight than commercial carriers. Many of the regulations for on-demand operators have not been updated to address changes in the industry since 1978. On-demand flights are also conducted in a higher-risk environment than flights of scheduled air carrier operations. For example, on-demand operators fly at lower altitudes, use unfamiliar airports, and conduct more frequent take-offs and landings. In addition, FAA has no near-term plans to implement a risk-based oversight system for on-demand operators similar to the ATOS system used for commercial air carriers. These differences may all be contributing factors to the higher fatal accident rate for this segment of the industry. FAA's lack of attention to the issues addressed in this report negatively impacts safety and potentially puts travelers at risk.

RECOMMENDATIONS

We recommend that FAA revise outdated regulations and strengthen its oversight of on-demand operators by:

1. Establishing milestones to track the implementation of recommendations made by the ARC and the NTSB that would enhance the safety and oversight of on-demand operators and reporting annually on progress toward those milestones to the Office of Inspector General.

2. Implementing an interim risk assessment oversight process for on-demand operators until the risk-based SASO approach is implemented.

3. Considering the inherent operational risk factors in on-demand operations in developing risk indicators for the new risk-based Part 135 oversight system.

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[14] Columbus, Ohio; Baton Rouge, Louisiana; Allegheny, Pennsylvania; Honolulu, Hawaii; Juneau, Alaska; Fairbanks, Alaska; and Anchorage, Alaska.

AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

We provided FAA with our draft report on May 27, 2009, and received its response on June 26, 2009. FAA concurred with all three of our recommendations and provided appropriate planned actions and target completion dates. FAA's response is included in its entirety in the appendix to this report.

ACTIONS REQUIRED

We consider all three recommendations addressed pending completion of FAA's proposed actions. We appreciate the courtesies and cooperation of FAA representatives, on-demand industry groups, and operators during this audit. If you have any questions concerning this report, please contact me at (202) 366-1427 or Tina Nysted, Program Director, at (404) 562-3770.

#

cc: FAA Associate Administrator for Aviation Safety
Director, Flight Standards Service
Martin Gertel, M-100
Anthony Williams, ABU-100

EXHIBIT A. OBJECTIVES, SCOPE, AND METHODOLOGY

Our audit objective was to evaluate the differences between FAA regulations and oversight for on-demand operators versus larger commercial air carriers. We conducted this audit between September 2007 and March 2009 in accordance with government auditing standards prescribed by the Comptroller General of the United States and included such tests as necessary to provide reasonable assurance of detecting abuse or illegal acts.

We reviewed data for the period January 2003 to December 2008. One exception was that we used NTSB accident rate data going back to 2000 to better establish the trend. To gather information for our evaluation, we visited FAA Headquarters and five Flight Standards District Offices (FSDOs). At the FSDOs, we interviewed managers, supervisors, and inspectors and reviewed files and documents related to inspector assignments, work plans, and training and on-demand operator oversight. We also visited or met with 22 on-demand operators to obtain data. In addition, we met with officials from the NTSB, the safety inspectors union, and five on-demand industry groups. Exhibit B lists the entities we contacted or visited during our review.

We omitted commuter operators from our review because they comprise only 3 percent of total on-demand operators and have more restrictive regulations and fewer fatal accidents. We also eliminated two other aviation sectors from our work because they have been the focus of recent or current reviews by other entities. Specifically, we did not include air medical operations because the NTSB issued a special investigation report in January 2006 on emergency medical services helicopter operations.[15] We also excluded all-cargo operators because of their small number and because the Government Accountability Office initiated an audit of air cargo safety in December 2007. This enabled us to focus on passenger operations by air taxis and air tours.

[15] EMS Helicopter Operations: Special Investigative Report, January 2006, National Transportation Safety Board.

EXHIBIT B. ENTITIES VISITED OR CONTACTED

FAA

Headquarters:

Aviation Safety (AVS)	Washington, DC

Flight Standards District Offices:

Anchorage FSDO	Anchorage, AK
Portland FSDO	Portland, ME
Windsor Locks FSDO	Windsor Locks, CT
South Florida FSDO	Miami and Fort Lauderdale, FL
Van Nuys FSDO	Van Nuys, CA

INDUSTRY GROUPS

Industry Associations

Air Charter Safety Foundation	Alexandria, VA
General Aviation Manufacturers Association	Washington, DC
National Air Transportation Association	Alexandria, VA
National Business Aviation Association	Washington, DC
Regional Airlines Association	Washington, DC

Other Stakeholders

National Transportation Safety Board	Washington, DC
Professional Airways Systems Specialists	Washington, DC

ON-DEMAND OPERATORS

Alaska Bush Float Plane Service	Talkeetna, AK
Aspen Helicopters	Oxnard, CA
Associated Aircraft Group	Danbury, CT
AVjet Aviation	Burbank, CA
Biscayne Helicopters, Inc.	Miami, FL
Channel Islands Aviation	Camarillo, CA
Clay Lacey Aviation	Van Nuys, CA
Evergreen Helicopters of Alaska	Anchorage, AK
Executive Air Charter of Boca Raton (DBA: Fair Wind Air Charter)	Stuart, FL
Interstate Aviation, Inc.	Plainville, CT

ON-DEMAND OPERATORS (CONT.)

JetLogistics, Inc.	Raleigh, NC
K2 Aviation	Talkeetna, AK
Maine Instrument Flight	Augusta, ME
NetJets International, Inc.	East Granby, CT
Palm Beach Aviation	West Palm Beach, FL
Presidential Aviation/Sentient Flight Group	Ft. Lauderdale, FL
Sentient Flight Group	Weymouth, MA
The Air Group	Van Nuys, CA
Trail Ridge Air, Inc.	Anchorage, AK
Twin Cities Air Services, LLC	Auburn, ME
Universal Jet Aviation	Boca Raton, FL
World Jet II	Ft. Lauderdale, FL

EXHIBIT C. ON-DEMAND FATAL ACCIDENTS BY STATE

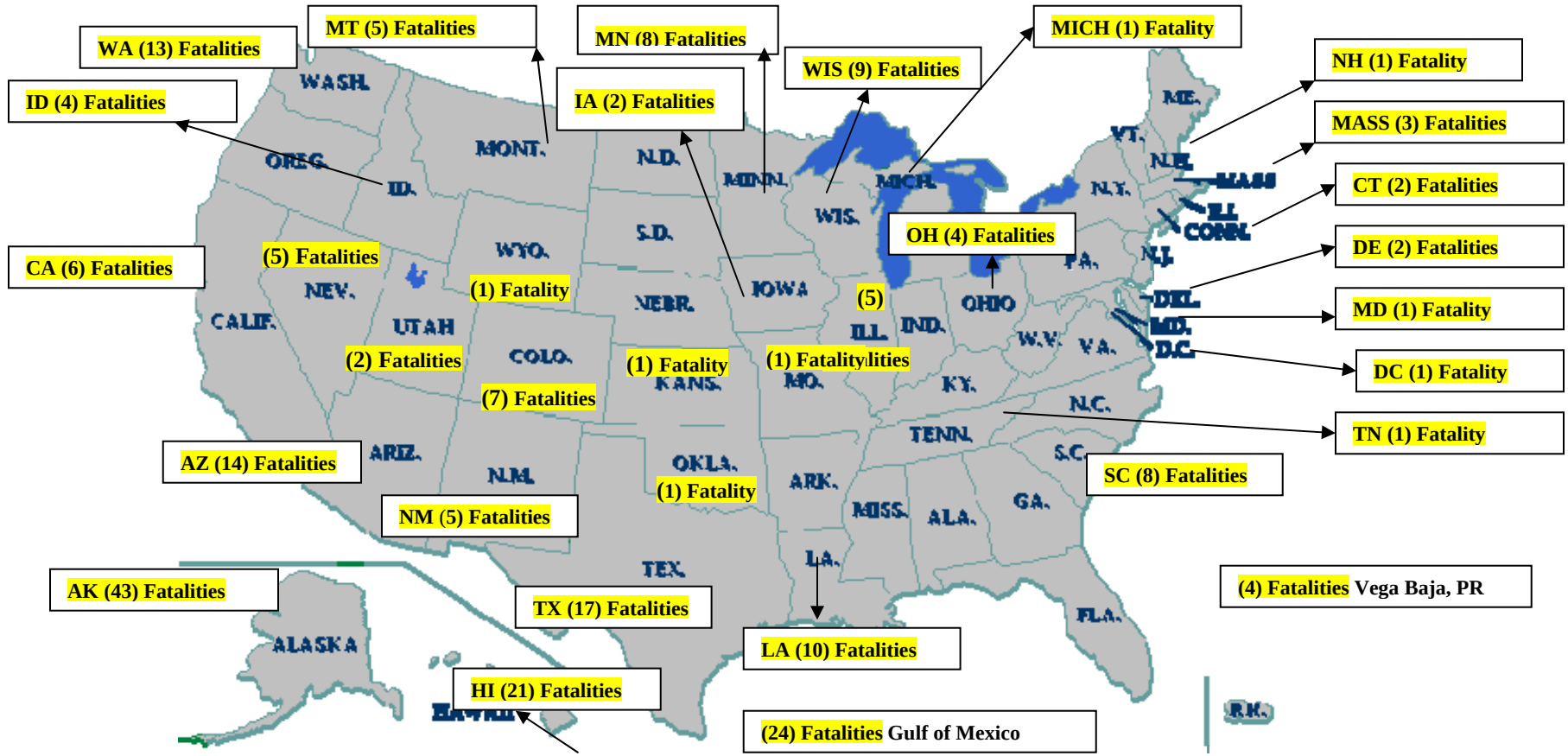

Exhibit C. On-Demand Fatal Accidents by State

EXHIBIT D. MAJOR CONTRIBUTORS TO THIS REPORT

Name	Title
Lou Dixon	Assistant Inspector General for Aviation and Special Program Audits
Tina Nysted	Program Director
Gloria Denmark	Project Manager
Karen Thompson	Senior Analyst
Curt Boettcher	Senior Analyst
Manuel Ramos	Auditor
Stefanie McCans	Analyst
Taniesha Snell	Analyst
Andrea Nossaman	Writer-Editor

APPENDIX. AGENCY COMMENTS

Federal Aviation Administration

Memorandum

Date: June 26, 2009

To: Lou E. Dixon, Assistant Inspector General for Aviation and Special Program Audits

From: Ramesh K. Punwani, Assistant Administrator for Financial Services/CFO

Prepared by: Cynthia A. Dominik, Acting AAE-2, x77560

Subject: OIG Draft Report: On-Demand Operators Have Less Stringent Safety Requirements and Oversight than Large Commercial Air Carriers

Thank you for the opportunity to review and comment on the findings and recommendations of the subject draft report dated May 27, 2009. The Federal Aviation Administration (FAA) concurs with all three recommendations.

The following is FAA's response to each of your recommendations:

OIG Recommendation 1: Establishing milestones to track the implementation of recommendations made by the Aviation Rulemaking Committee and the National Transportation Safety Board that would enhance the safety and oversight of on-demand operators and reporting annually on progress toward those milestones to the Office of Inspector General.

FAA Response: Concur. Because some of the recommendations may have been overtaken by events, the FAA will review the recommendations, determine which are still valid, and establish a timeline for implementation by December 31, 2009.

Recommendation 2: Implementing an interim risk assessment oversight process for on-demand operators until the risk-based SASO approach is implemented.

FAA Response: Concur. The surveillance requirements for on-demand operators in FAA Order 1800.56J, Flight Standards National Work Program Guidelines (NPG), are risk-based oversight activities. By December 31, 2009, the FAA will review the current policy and its application, and will make subsequent adjustments to reflect a risk-based oversight approach to surveillance of on-demand operators.

Recommendation 3: Considering the inherent operational risk factors in on-demand operation in developing risk indicators for the new risk-based Part 135 oversight system.

FAA Response: Concur. By September 30, 2010, the FAA will identify the initial set of risk indicators for part 135 on-demand operators which inspectors would use in a risk-based surveillance system. The FAA will consider and incorporate the appropriate, inherent operational risk factors in on-demand operations as it develops its risk-based Title 14 Code of Federal Regulations part 135 oversight system scheduled for implementation in calendar year 2013.

Appendix. Agency Comments